

## REMARKS

In the Advisory Action mailed on **July 14, 2004**, the examiner reviewed claims 1-9, 12-20, and 23-24. The Examiner maintained the rejections of paragraphs 33-37 of the Office Action mailed April 2, 2004.

### Rejections under 35 U.S.C. §103(a)

Independent claims 1, 12, and 23 were rejected as being unpatentable over Marcuello (2). Applicant respectfully points out that Marcuello (2) teaches comparing the **final** results of the head thread and the speculative thread and either rolling back the speculative thread or committing the speculative thread, depending on the result of the comparison. Specifically, Marcuello (2) states: “When a speculative thread reaches the closing branch of its iteration, it is suspended and waits to be either committed or squashed.” (see Marcuello (2), page 79, section 2.1, third paragraph, lines 4-6).

In contrast, the present invention is directed to **monitoring every write operation** from the head thread to determine if the speculative thread has read the value and, if so, immediately rolling back the speculative thread to reread the new value (see FIGs. 5, and 7-8, page 13, line 19 to page 14, line 11, and page 15, line 14 to page 16, line 18 of the instant application). Specifically, FIG. 7 is related to write operations to an object by the head thread. Page 15, lines 16-20 state: “The system writes to the primary version of object 510 if the two space-time dimensions area not collapsed at this point (step 702). Next, the system checks status word 504 within primary version of object 500 to determine whether a rollback is required (step 704).”

Thus, the present invention checks for a rollback condition **after every write** by the head thread, which is not the same as the system of Marcuello, which checks only after the speculative thread reaches the closing branch of its iteration.

It is advantageous to monitor every write operation from the head thread because by doing so, an error can be detected earlier. Detecting an error earlier prevents the system from continuing execution of a speculative thread using incorrect data, thereby providing better utilization of the speculative thread.

There is nothing within Marcuello (2), which suggests monitoring **every** write operation from the head thread to determine if the speculative thread has read the value and, if so, immediately rolling back the speculative thread to reread the new value.

Accordingly, Applicant has amended independent claims 1, 12, and 23 to clarify that the present invention checks for a rollback condition after every write operation by the head thread. These amendments find support in FIG. 7, and on page 15, line 14 to page 16, line 11 of the instant application

Hence, Applicant respectfully submits that independent claims 1, 12, and 23 as presently amended are in condition for allowance. Applicant also submits that claims 2-9, which depend upon claim 1, claims 13-20, which depend upon claim 12, and claim 24, which depends upon claim 23, are for the same reasons in condition for allowance and for reasons of the unique combinations recited in such claims.

**CONCLUSION**

It is submitted that the present application is presently in form for allowance. Such action is respectfully requested.

Respectfully submitted,

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